

0008336279 - Drawing available
WPI ACC NO: 1997-448837/199741

Optical film for controlling reflectance and transmission - comprises continuous and dispersed polymeric phases, which show refractive index mismatch along one axis and match along another

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Patent Family (15 patents, 72 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
WO 1997032223	A1	19970904	WO 1997US2293	A	19970218	199741 B
AU 199721245	A	19970916	AU 199721245	A	19970218	199803 E
NO 199803987	A	19981029	WO 1997US2293	A	19970218	199902 E
		NO 19983987	A	19980828		
EP 883820	A1	19981216	EP 1997906593	A	19970218	199903 E
		WO 1997US2293	A	19970218		
BR 199707766	A	19990727	BR 19977766	A	19970218	199941 E
		WO 1997US2293	A	19970218		
CN 1212760	A	19990331	CN 1997192647	A	19970218	200005 E
JP 2000060691	W	20000606	JP 1997530975	A	19970218	200035 E
		WO 1997US2293	A	19970218		
MX 199806941	A1	19990101	MX 19986941	A	19980826	200051 E
KR 1999087313	A	19991227	WO 1997US2293	A	19970218	200059 E
		KR 1998706721	A	19980827		
EP 883820	B1	20020109	EP 1997906593	A	19970218	200211 E
		WO 1997US2293	A	19970218		
DE 69709545	E	20020214	DE 69709545	A	19970218	200220 E
		EP 1997906593	A	19970218		
		WO 1997US2293	A	19970218		
KR 2004096516	A	20041116	KR 2004710422	A	20040630	200522 E
CN 1105922	C	20030416	CN 1997192647	A	19970218	200538 E
KR 497280	B	20050701	WO 1997US2293	A	19970218	200660 E
		KR 1998706721	A	19980827		
		KR 2004710422	A	20040630		
KR 486319	B	20050912	WO 1997US2293	A	19970218	200680 E
		KR 1998706721	A	19980827		

Priority Applications (no., kind, date): US 1996610110 A 19960229; WO 1997US2293 A 19970218

Alerting Abstract WO A1

An optical body comprises (a) a first phase; and (b) a second phase, which is co-continuous with the first phase along at least one axis. Both phases are polymeric and the refractive index difference between them is at least 0.05 along a first axis and less than 0.05 along a second axis.

USE - Used particularly as diffuse polarisers, but also low loss (non-absorbing) reflective polarisers or diffuse mirrors. The reflective polarisers are particularly useful in liquid crystal display panels. They may also be used as a thin IR sheet polariser. The polariser may be constructed out of polyethylene naphthalate (PEN) or similar materials, which are good UV absorbers.

ADVANTAGE - The refractive index mismatch between the 2 phases along the material's three-dimensional axes can be conveniently and permanently manipulated to achieve desired degrees of diffuse and specular reflection and transmission. Transmission and reflection properties can be controlled by changing the thickness of the optical body. The optical material is stable to stress, strain, temperature differences and electric and magnetic fields, and it has an insignificant level of iridescence. Co-continuous systems are frequently easier to process and may impart properties such as weatherability, reduced flammability, greater impact resistance and tensile strength, improved flexibility and superior chemical resistance. Interpenetrating polymer networks (IPN) are particularly useful in certain applications as they swell but do not dissolve in solvents and they show suppressed creep and flow compared to analogous non-IPN systems.